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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,616	11/13/2003	Vinod Sharma	139-033U	2521

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EXAMINER

SLAVITT, MITCHELL R

ART UNIT	PAPER NUMBER
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2627

DATE MAILED: 07/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/713,616

Applicant(s)

SHARMA ET AL.

Examiner

Mitchell R. Slavitt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 and 14 is/are allowed.
- 6) ☒ Claim(s) 1-12 and 15-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 3 fails to further limit the scope of claim 1 since claim 1 already recites in line 5 “wherein said N is at least one”.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-12 and 15-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1:

Lines 1-2, the phrase “A flex circuit interface coupling providing” is not clear. Should it be “A flex circuit interface providing”, “A flex circuit interface coupler providing” or “A flex circuit interface coupling device providing” a micro-actuator control bundle to a micro-actuator? Further, the term “said read-write heads” lacks antecedent basis. It appears to be – said read-write head--.

Lines 6-8, the phrase “the control bundle collection” lacks antecedent basis. The limitation “wherein each member of the control bundle collection comprising said source control bundle, and said micro-actuator control bundle, for each of said read-write heads, comprises a first of a control signal” is not clear. Does applicant mean that a combination of said source control bundle and said micro-actuator control bundle comprises a control signal? Further, “a first of a control signal” appears to be –a first control signal--.

Line 3, “included in a voice coil actuator” is not clear which components between the “flex circuit interface coupling”, the “micro-actuator control bundle”, the “micro-actuator”, the “read-write head” and the “N of said read-write heads” is/are meant to be included in the voice coil actuator.

Regarding claim 2:

Line 3, “a second of a control signal” should be – a second control signal--.

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Regarding claim 4: “the flex circuit constraints of said voice coil actuator of claim 1” is not clear. Claim 1 recites “a flex circuit interface coupling” but does not recite that this flex circuit interface coupling constraints of the voice coil actuator. However, if applicant means to refer back to the “flex circuit interface coupling” of claim 1, then --A main flex circuit compatible with the flex circuit interface coupling (coupler or device, etc.) of claim 1, comprising” should be recited. Further, in the limitation “a bridge coupling region providing said

source control bundle coupling to said micro-actuator control bundle on a bridge flex circuit, for each of said N micro-actuators”, it is not clear if the “micro-actuator control bundle” is on “a bridge flex circuit” or the “a bridge coupling region” is on the “a bridge flex circuit”. Also, the term “a bridge flex circuit” lacks clear structural support to form antecedent basis. Does the main flex circuit include the bridge flex circuit or is the bridge flex circuit a separate component from the main flex circuit? The bridge flex circuit is an indirect limitation that is vague and indefinite.

Regarding claim 5: “said bridge flex circuit compatible with the flex circuit..” is not clear if claim 5 means to claim a bridge flex circuit or does it mean to further limit the main flex circuit including said bridge flex circuit of claim 1. The scope of claim is not ascertained.

Regarding claim 6: it is confusing for what exactly is claimed because claim 5 does not specifically claim the main flex circuit. The “said bridge flex circuits” does not have antecedent basis and are indirect limitations that are vague and indefinite. Further, “said micro-actuator control bundles, for each of said N read-write heads” is inconsistent.

Regarding claims 7-10: “Said voice coil actuator” does not have antecedent basis. The scope of claim 7 is not ascertained.

Regarding claim 12: Line 8, “said read-writes” lack antecedent basis. It should be – said read-write heads---.

Regarding claim 15: “Said bridge flex circuit” does not have antecedent basis. The scope of claim is not ascertained.

Regarding claim 16: The “Said bridge flex circuits” does not have antecedent basis.

Regarding claim 17: “Said flex circuit assembly” does not have antecedent basis. The scope of claim 17 is not ascertained.

Regarding claim 19: “Said voice coil actuator” does not have antecedent basis. The scope of claim 19 is ascertained.

Regarding claim 21: “Said disk drive “ does not have antecedent basis. The scope of claim 21 is not ascertained.

Claims have not been mentioned are rejected because they are dependent on the rejected claims.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Morris'US/5,978,752.

Regarding claim 1, Morris teaches in figure 4 “a circuit flex interface assembly” providing “a micro-actuator control bundle” (communication connection between micro-actuator controller(s) 174 and micro-actuators 158) to a micro-actuator 158 for positioning a read-write head for each of at least N of said read-write head included in a voice coil actuator for a disk drive (figure 4), comprising:

a source control bundle (a communication line between drive controller 166/servo control processor 170 and micro-actuator controller 174) respectively coupling to said micro-actuator control bundle for each of said N read-write heads, wherein said N is at least one; wherein each member of a control bundle collection comprising said source control bundle, and said micro-actuator control bundle, for each of said read-write head, comprises a first control signal; wherein for each of said N read-write heads, said source control bundle respectively coupling to said micro-actuator control bundle, further comprises said first control signal of said source control bundle coupling to said first control signal of said micro-actuator control bundle (Note that, in Morris, micro-actuator controller 174 receives a control signal from drive controller 166 to control each micro-actuator 158 for positioning each read-write head.

Regarding claim 2, line 5, Morris teaches in col. 6, lines 57-65, wherein each member of the control bundle collection comprises a second control signal. Morris teaches that a signal from the source control bundle to micro-actuator control bundle originates in response to the drive controller 166 and in response to the embedded position information read from the disc from servo control processor 170. Therefore, a first control signal is from one source and second control signal is from another source.

Regarding claim 3, Morris teaches in figure 2, 116, N read-write heads.

Regarding claim 12, Morris teaches in figure 4 a method of operating a hard drive comprising the steps of:

Generating a control signal bundle (communication line between elements 166/170 and element 174) based on directions from a servo control processor 170 to position N

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number of heads over tracks of a disc surface in the disk drive, wherein N is at least two;

Sharing said control signal bundle to a micro-actuator control signal bundle for a separate micro-actuator, for each of said heads;

Wherein each of said micro-actuators responds to said micro-actuator control signal bundle to position each of said heads, said micro-actuator of said one head positions said one read-write head. Morris teaches at col.6, line 6, micro-actuators can be formed of PZT material.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morris in view of Boutaghou et al'US/ 6,275,454 (Boutaghou).

Morris teaches all that is claimed except for the use of an optical disk. Boutaghou teaches this. See col.2, lines 20-40. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Morris to include the use of an optical disc as taught by Boutaghou. The motivation would have been the application of a source control bundle coupled to a micro-actuator control bundle to position a read-write head for both magnetic and optical disks.

10. Claims 13-14 are allowed.

The prior art of record fails to teach or suggest a method making a bridge flex circuit comprising the step of probing a bridge flex circuit coupled with a test strip providing a probe point for testing for a micro-actuator control bundle through said bridge flex circuit to create a bridge flex probe of said micro-actuator control bundle; and removing said test strip near a

cleavage line to create said bridge flex circuit when probing said bridge flex circuit includes said test for said micro-actuator control bundle is successful as recited in claim 13. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

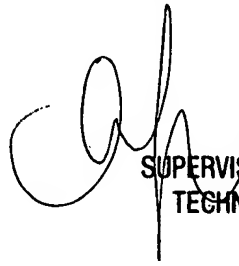
14. Due to the fact that the scope of claims 5-10, and 15-22 are not ascertained as mentioned in the 112, 2nd rejection, these claims have not been treated based on prior art.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mitchell Slavitt whose telephone number is 571-272-7562. The examiner can normally be reached on M-F from 8.00am to 4.30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen, can be reached at 571-272-7559. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mitchell Slavitt
Patent Examiner
Art Unit 2627


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7/19/06